

Abstract of the Disclosure

A damage-free apparatus for etching the large area by using a neutral beam which can perform an etching process without causing electrical and physical damages by the use of the neutral beam is provided. The damage-free etching apparatus includes: an ion source for extracting and accelerating an ion beam having a predetermined polarity; a grid positioned at the rear of the ion source and having a plurality of grid holes through which the ion beam passes; a reflector closely attached to the grid and having a plurality of reflector holes corresponding to the grid holes in the grid, the reflector for reflecting the ion beam passed through the grid holes in the reflector holes and neutralizing the ion beam into a neutral beam; and a stage for placing a substrate to be etched in a path of the neutral beam.